

Water Resources In the United States: Perspectives and Challenges

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1800's Westward Expansion - Water Central to Nation building

1850 - 1900s - Evolution of Federal Roles navigation, flood control, others, areas public municipal water supply; progressive era and conservation (wise use utilitarian Pinchot view)

1920's Reaction to public roles power; 1927 Flood Control Act

1930 -1940s Depression and New Deal Massive Public Infrastructure investments (e.g. TVA..)

1940 - 1970 Post War Struggling with coordination and national policy, planning, commissions, continued supply focus

1. History

1970's NEPA Clean Water Act (M...

Water Ways & Establishing National Federal Interventions Over Interstate Issues



1808: Gallatin Report

Waterways to be used for:
Building Political Unity and Nation

National Defense

Economic Development

1824: GIBBONS VS. OGDEN

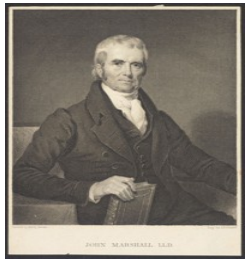
(Estbl. Federal Powers vs. States)

Claims are said to be repugnant-

1st. To that clause in the constitution which authorizes Congress to regulate commerce.

2d. To that which authorizes Congress to promote the progress of science and

arts
Congress Authorizes USACE do assessments of all major rivers of the



Marshall

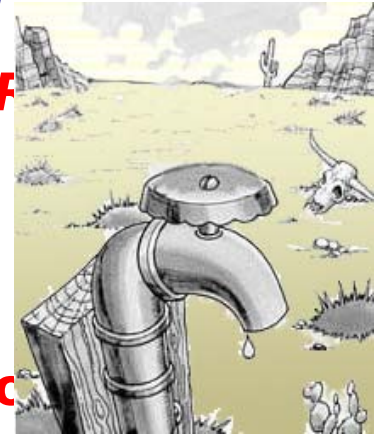
Gibbons

Ogden

1920's - "308" Reports

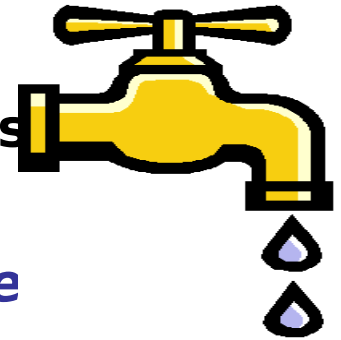
Some Water Basics in the US

- US supplies 500,000 gals per person per year
- 19 cents /gal average
 - Municipalities \$1 / 1,000 gals
 - Industry and Agriculture less then 10 cents/1000 gals
 - Bottled water \$4,000 per 1,000 gals
- US divided in middle 100th meridian
 - Most East rain fed and Arid West irrigation
- *Two main legal Traditions of water rights Riparian in East and Prior Appropriation in West*
- **Reserved Rights in West - Native American F**
- **Ground Water:**
 - *Rule of Capture*
 - *Riparian*
 - *Reasonable use*
- **Federal System - States have primary control over water**
- *Federal Interests based on Interstate Commerce, National Economics benefits, Environmental and Public Health, managing transboundary conflicts*
- Most people served by public water supplies



Water Investments

- By early 1990's over \$400 billion for capital investment
- 25,000 miles of inland waterways
- 83,000 reservoirs and dams
- 88,000 megawatts of hydro power capacity (= to nuclear)
- 52,000 public utilities supply 24 billion gals per day to domestic users
- 60 million acres of land irrigated
- 15,000 municipal sewage treatment plants
- 60,000 water pollution control permits
- ***BUT 60% of original inland wetlands converted for other uses***
- ***BUT 50% of 1.5 million miles of streams and unknown amount of groundwater significantly polluted***



Water as an Industry in the US

- *No one Federal Policy: collection of incremental policies*
- Annual expenditures is third - behind electric power and petro chemicals
- Most capital intensive
- Most highly regulated
- 90,000 people in Federal Government
- *Parts of 10 Cabinet Departments*
- *2 major Independent Agencies*
- *34 Smaller Water Agencies*
- State and Local over 300,000 people
- Private sector and consultants over 50,000



Complex Aspects of Water Related Responsibilities

Federal Level

- interstate commerce
- public health
- standards
- environment
- public goods aspects
- conflicts
- protection of rights

State Level

- Sovereign over water

Local - Municipal Level

- Zoning
- Land use

Individual

- Private Property Rights

American Federalism

Marble Cake Or Layer Cake?



Marble Cake Federalism is based on a pragmatic mixing of authority and programs among the national, state, and local governments.



Layer Cake Federalism is based on a clear delineation of authority and programs among the levels of government.



Community Water Infrastructure

- Spend about \$59 billion every year for clean water annual shortfall of \$23 billion
- Metro areas have grown from 9% to 19% of land area since 1960
- 17 million people in US have sub standard facilities
- *Public infrastructure investment declined from 3.9% of Federal budget in 1960 to 2.6% today. Of this share from water declined 1% to .2%*
- Almost 900 US cities have combined sanitary and sewer systems creating sewage overflows
- 83,000 dams, of which 2,000 are owned by Federal Government. Average age is 40 years
- Almost 1,600 significant hazard dams are within one mile of a downstream city